CLAIMS

We claim:

1. A method of integrating a scheduling algorithm in a wireless network shared by a plurality of users comprising the step of utilizing an adaptive contention scheduling scheme.

2. The method of claim 1 wherein the adaptive contention scheduling scheme switches seamlessly between two coordinating slotted multiple access modes.

3. The method of claim 2 wherein both slotted multiple access modes are present in the wireless network at all times.

4. The method of claim 2 wherein a percentage value is assigned to each of the slotted multiple access modes.

5. The method of claim 4 wherein the sum of the percentage values is 100%.

6. The method of claim 4 wherein the percentage value for each slotted multiple access mode present in the wireless network is a dynamically changing value.

7. The method of claim 2 wherein the coordinating slotted multiple access modes include a request and grant mode and a contention mode.

8. The method of claim 1 wherein the adaptive contention scheduling scheme generates a plurality of contention slots.

9. The method of claim 8 wherein the adaptive contention scheduling scheme allocates a queue in a weighted fair queue for generating the plurality of contention slots.

10. The method of claim 9 wherein two new requests for generating contention slots are placed in the weighted fair queue when a collision occurs between two users.

11. The method of claim 10 wherein a starting request is placed in the weighted fair queue when all contention is resolved.

12. The method of claim 9 further comprising utilizing the weighted fair queue to adjust the rate of generating the plurality of contention slots automatically.

13. The method of claim 12 wherein the rate of generating the plurality of contention slots increases when the wireless network is lightly loaded.

14. The method of claim 12 wherein the rate of generating the plurality of contention slots decreases when the wireless network is heavily loaded.

15. An apparatus for integrating a scheduling algorithm in a wireless network shared by a plurality of users comprising means for implementing an adaptive contention scheduling scheme to switch seamlessly between two coordinating slotted multiple access modes.

16. The apparatus of claim 15 wherein both coordinating slotted multiple access modes are present in the wireless network at all times.

17. The apparatus of claim 15 wherein a percentage value is assigned to each of the slotted multiple access modes.

18. The apparatus of claim 17 wherein the sum of the percentage values is 100%.

19. The apparatus of claim 17 wherein the percentage value for each slotted multiple access mode present in the wireless network is a dynamically changing value.

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20.   The apparatus of claim 15 wherein the coordinating slotted multiple access modes include a request and grant mode and a contention mode.

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21.   The apparatus of claim 15 wherein the adaptive contention scheduling scheme generates a plurality of contention slots.

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22.   The apparatus of claim 21 wherein the adaptive contention scheduling scheme allocates a weighted fair queue for generating the plurality of contention slots.

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23.   The apparatus of claim 22 wherein two new requests for generating contention slots are placed in the weighted fair queue when a collision occurs between two users.

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24.   The apparatus of claim 23 wherein a starting request is placed in the weighted fair queue when all contention is resolved.

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25.   The apparatus of claim 22 further comprising means for utilizing the weighted fair queue to adjust the rate of generating the plurality of contention slots automatically.

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26.   The apparatus of claim 25 wherein the rate of generating the plurality of contention slots increases when the wireless network is lightly loaded.

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27.   The apparatus of claim 25 wherein the rate of generating the plurality of contention slots decreases when the wireless network is heavily loaded.

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28.   An apparatus for integrating a scheduling algorithm in a wireless network channel shared by a plurality of users comprising:
    a.   a hub for transmitting and receiving wireless network signals such that the hub may receive requests and assign portions of a communication bandwidth;

6   b.   a plurality of end user nodes for transmitting and receiving
7   wireless network signals such that a plurality of users may request or be   granted
8   a portion of the communication bandwidth; and
9   c.   a weighted fair queue for utilizing an adaptive contention
10 scheduling scheme to prioritize end user node requests and contention
11 requests according to a quality of service standard.

12 29.   The apparatus of claim 28 wherein the adaptive contention scheduling
scheme switches seamlessly between two coordinating slotted multiple access modes.

1   30.   The apparatus of claim 29 wherein both slotted multiple access modes are
present in the wireless network at all times.

1   31.   The apparatus of claim 29 wherein a percentage value is assigned to each
2   of the slotted multiple access modes.

3   32.   The apparatus of claim 31 wherein the sum of the percentage values is
4   100%.

5   33.   The apparatus of claim 31 wherein a percentage value for each slotted
multiple access mode present in the wireless network is a dynamically changing value.

1   34.   The apparatus of claim 29 wherein the coordinating slotted multiple access
modes include a request and grant mode and a contention mode.

35.   The apparatus of claim 28 wherein the adaptive contention scheduling
scheme generates a plurality of contention slots.

1   36.   The apparatus of claim 35 wherein the adaptive contention scheduling
2   scheme allocates a queue in the weighted fair queue for generating the plurality of
3   contention slots.

4   37.   The apparatus of claim 36 wherein two new requests for generating

5   contention slots are placed in the weighted fair queue when a collision occurs between

6   two users.

7   38.   The apparatus of claim 37 wherein a starting request is placed in the

8   weighted fair queue when all contention is resolved.

9   39.   The apparatus of claim 36 further comprising utilizing the weighted fair

10   queue to adjust the rate of generating the plurality of contention slots automatically.

11   40.   The apparatus of claim 39 wherein the rate of generating the plurality of

12   contention slots increases when the wireless network is lightly loaded.

13   41.   The apparatus of claim 39 wherein the rate of generating the plurality of

14   contention slots decreases when the wireless network is heavily loaded.